

## Final Examinations

1

Cairo

### 1 Complete the following:

- $3 + |-3| = \dots\dots\dots$
- If  $2x = 10$ , then  $x = \dots\dots\dots$
- The probability of the sure event =  $\dots\dots\dots$
- If the lateral area of a cuboid is  $120 \text{ cm}^2$  and the perimeter of its base is  $20 \text{ cm}$ , then the length of its height =  $\dots\dots\dots \text{ cm}$ .

### 2 Choose the correct answer from those given:

- $(-7) \dots\dots\dots \mathbb{Z}$  ( $\in$  or  $\notin$  or  $\subset$  or  $\supset$ )
- The measure of the angle of the sector that represents a quarter of the circle is  $\dots\dots\dots^\circ$  (90 or 60 or 45 or 30)
- If the length of the edge of a cube is  $6 \text{ cm}$ , then its total area =  $\dots\dots\dots \text{ cm}^2$  (36 or 72 or 144 or 216)
- $3^2 + 3^2 + 3^2 = \dots\dots\dots$  ( $2^6$  or  $3^3$  or  $2^9$  or  $3^6$ )

### 3 a Find the solution set of the following equation in the set of natural numbers ( $\mathbb{N}$ ): $7x + 1 = 22$

- Find the result of:  $\frac{(-5)^6 \times 5^4}{5^8}$

### 4 a Find the solution set of the following equation in the set of integers ( $\mathbb{Z}$ ): $2x + 11 = 1$

- If the length of the diameter of a circle is  $14 \text{ cm}$ . Calculate:

- The circumference of the circle.
- The surface area of the circle. ( $\pi \simeq \frac{22}{7}$ )

### 5 a A box contains 10 identical balls numbered from 1 to 10, one ball is drawn at random.

Write the sample space, then find the probability that the drawn ball has:

- An even number.
  - A number divisible by 5
  - A prime number.
- A case in the shape of a cuboid, its base is a square of side length  $6 \text{ cm}$ , and its height of length  $10 \text{ cm}$ . Calculate:
    - The lateral area.
    - The total area.

### 6 Additional question:

- Find the solution set of the inequality:  $x + 4 < 7$  where  $x \in \mathbb{N}$ , then represent it on the number line.
- On the Cartesian coordinates plane draw the rectangle ABCD where A (2, 2), B (4, 4), C (1, 4) and D (1, 2), then find its image by the translation  $(x + 2, y + 1)$

2

Giza

### 1 Choose the correct answer from those given:

- $\{2\} \dots\dots\dots \mathbb{Z}$  ( $\in$  or  $\notin$  or  $\subset$  or  $\supset$ )
- The area of the circle surface =  $\dots\dots\dots$  ( $2\pi r$  or  $\pi r$  or  $2\pi r^2$  or  $\pi r^2$ )
- $3^2 \times 3^3 = 3^{\dots\dots\dots}$  (5 or 3 or 2 or 1)
- The probability of the appearance of a tail when tossing a regular coin only once =  $\dots\dots\dots$  (zero or  $\frac{1}{2}$  or 1 or 2)

### 2 Complete the following:

- $\mathbb{Z}^+ \cap \mathbb{Z}^- = \dots\dots\dots$
- In an experiment of throwing a fair die once, then the event of appearing of a number less than 2 is  $\{\dots\dots\dots\}$ .
- If  $x - 3 = 4$ ,  $x \in \mathbb{Z}$ , then  $x = \dots\dots\dots$
- The total area of a cube = The area of one face  $\times \dots\dots\dots$

### 3 a Find the result of $(-1)^2 \times (-2)$ .

- A circle the length of its diameter is  $14 \text{ cm}$ , Calculate its surface area. ( $\pi \simeq \frac{22}{7}$ )

### 4 a Find in $\mathbb{Z}$ the solution set of the equation: $5x + 2 = 7$

- The perimeter of the base of a cuboid =  $24 \text{ cm}$ . and its height =  $10 \text{ cm}$ . Calculate the lateral area.

### 5 a Find in $\mathbb{N}$ the solution set of the equation: $x + 7 = 3$

- The following table shows the percentage of the production of chickens in 3 farms monthly.

Farm	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>
The percentage	50%	20%	30%

Represent these data by circular sectors.

**6 Additional question:**

**a Complete:**

- (1) The image of the point (3, 2) by translation  $(x + 3, y - 2)$  is (....., .....)
- (2) The set of integer numbers which are less than 1 and greater than  $(-4)$  is .....

**b Find the solution set of the following inequality in  $\mathbb{N}$ :  $x + 1 < 4$  and represent it on the number line.**

3

**Alexandria**

**1 Choose the correct answer from those given:**

- a**  $\mathbb{Z}^-$  .....  $\mathbb{N}$  ( $\in$  or  $\notin$  or  $\subset$  or  $\supset$ )
- b**  $(-7)^2 =$  ..... ( $\frac{7}{2}$  or  $-\frac{7}{2}$  or 49 or -49)
- c** If the area of base of a cube is  $49 \text{ cm}^2$ , then the lateral area equals .....  $\text{cm}^2$ .  
(392 or 294 or 196 or 98)
- d** If S is the sample space of a random experiment, then  $P(S) =$  .....  
(1 or zero or 2 or 0.8)

**2 Complete the following:**

- a**  $51 + |-4| =$  .....
- b** If  $x + 3 = 3$ , then  $x =$  .....
- c** The total area of the cube = .....  $\times$  area of one face.
- d** The probability of the impossible event = .....

**3 a Use the properties of addition operation in  $\mathbb{Z}$  to find the result of the following and state the property used in each step:  $(-120) + 17 + 131$ .**

**b Solve the following equation in  $\mathbb{Z}$ :  $2x + 9 = -23$ .**

**4 a A circle its diameter is 14 cm, calculate its surface area where  $(\pi \simeq \frac{22}{7})$ .**

**b Solve the following equation in  $\mathbb{N}$ :  $x + 8 = 19$ .**

**5 a A cuboid its length is 6 cm, its width is 4 cm, and its height is 8 cm. Find its total area.**

- b** The following table shows the percentage of egg production in three farms, a merchant collected these eggs to distribute it on the grocery stores, **represent these data by using the circular sectors.**

Farm	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>
The percentage of the production	25%	35%	40%

**6 Additional question:**

**a Choose the correct answer:**

- (1) The image of the point (3, -2) by translation (4, 2) is .....  
{ (-7, 0) or (7, 0) or (-1, 4) or (1, 7) }
- (2) The greatest integer number that verifies the inequality  $x < 6$  is .....  
(3 or 5 or 8 or 6)

**b Find the solution set of the inequality:  $2x + 9 > 1$  where  $x \in \mathbb{Z}^+$**

4

**Qalubia**

**1 Choose the correct answer:**

- a**  $\mathbb{Z}^+ \cap \mathbb{Z}^- =$  ..... ( $\{0\}$  or  $\emptyset$  or  $\mathbb{Z}$  or  $\mathbb{Z}^+$ )
- b**  $2^3 \times 2^3 =$  ..... ( $2^5$  or  $2^{15}$  or  $4^8$  or  $4^{15}$ )
- c** The S.S of the equation  $4x = 24$  in  $\mathbb{N}$  is ..... ( $\{2\}$  or  $\{3\}$  or  $\{4\}$  or  $\{6\}$ )
- d** If the edge length of a cube is 6 cm, then its total surface area = .....  $\text{cm}^2$ .  
(30 or 42 or 216 or 24)

**2 Complete:**

- a** The sum of measures of the angles accumulative in the center of the circle = .....°
- b**  $5^{\text{zero}} =$  .....
- c** If a dice is thrown once, then the probability of getting the number 4 = .....
- d** ..... is the smallest positive integer.

**3 a Find S.S in  $\mathbb{Z}$  for the equation:  $2x + 1 = 13$ .**

**b A circle of radius length 7 cm, find its area. (when  $\pi \simeq \frac{22}{7}$ ).**



- 4** a Find the value of  $\frac{2^2 \times 2^3}{2^5}$  in the simplest form.  
 b Find the lateral area of a cuboid if the two dimensions of its base are 6 cm and 4 cm, and its height = 10 cm.

- 5** a A box contains 4 white balls, and 6 red balls, one ball is drawn at random. Find the probability that this ball is:  
 (1) White. (2) Not white.  
 b The table shows the percentages of meat production in 3 slaughter houses during one month.

Slaughter house	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>
Percentage	25%	35%	40%

Represent these data by a pie chart.

**6** Additional question:

- a Complete:  
 1) The image of the point (2, 3) by the translation (-1, 1) is .....  
 2) 2, 3, 5, 8, 13, ..... in the same pattern  
 b Find the solution set of the inequality  $x + 13 < 17$  where  $x \in \mathbb{N}$ .

5

Menofia

**1** Choose the correct answer from those given:

- a The surface area of the circle = ..... ( $\pi$  or  $2\pi r$  or  $\pi r^2$  or  $2\pi r^2$ )  
 b  $(-10)^{\text{zero}}$  = ..... (-10 or -1 or 10 or 1)  
 c Which of the following can be the probability of an event? .....  
 (zero% or 1.2 or  $\frac{17}{16}$  or 1.1%)  
 d If  $x + 2 = |-4|$  then  $x =$  ..... (-2 or 2 or -6 or 6)

**2** Complete each of the following:

- a The set of integers which are less than 3 = .....  
 b The  $\emptyset$  is the empty set, then  $P(\emptyset) =$  .....

- c The lateral area of the cube = Area of one face  $\times$  .....

- d Put the suitable symbol ( $\in$  or  $\notin$  or  $\subset$  or  $\supset$ ):

(1)  $\frac{6-6}{8}$  .....  $\mathbb{Z}$  (2)  $\{-3, \frac{7}{11}\}$  .....  $\mathbb{Z}$

- 3** a Find the result of: 1)  $\frac{3^4 \times (-3)^5}{3^7}$  2)  $(-17) + 19 + 17$  and state the property.

- b A cuboid its length is 9 cm, its width is 4 cm, and its height is 8 cm.

Find: 1) Its lateral area. 2) Its total area.

- 4** a Solve the equation:  $2x + 9 = -23$  in  $\mathbb{N}, \mathbb{Z}$ .

- b The following table shows the percentages of the number of students who participate in the school activities.

The activity	Culture	Sport	Art	Social
The percentage	5%	50%	10%	35%

Represent these data by a pie chart.

- 5** a Find the value of: 1)  $x - 2 = 1$  2)  $2x + 1 = -5$

- b A circle its diameter is 12 cm, calculate its surface area to the nearest unit where ( $\pi \approx 3.14$ ).

**6** Additional question:

- a Complete:

(1) The image of the point (2, 3) by the translation  $(x + 1, y - 1)$  is .....

(2)  $\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \dots$  in the same pattern.

- b Find the solution set of the inequality:  $3x + 2 \leq 11$  where  $x \in \mathbb{Z}$

6

Gharbia

**1** Choose the correct answer from those given:

- a  $0 \times (-1) \times (-2) \times (-3) =$  ..... (zero or -6 or -5 or 6)

- b  $2^6 \times 2^2 \div 2^7 =$  ..... ( $2^8$  or  $2^{12}$  or  $2^5$  or 2)

- c The height of the cuboid whose lateral area is  $120 \text{ cm}^2$  and the dimensions of its base are 4 cm and 6 cm = ..... cm. (5 or 6 or 12 or 2.5)
- d A fair die is thrown once, then the probability of appearing the number 5 equals ..... (zero or  $\frac{1}{6}$  or  $\frac{5}{6}$  or 1)

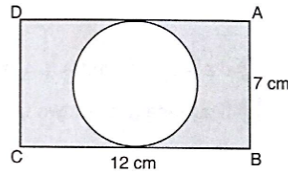
**2 Complete:**

- a If  $7x = -42$ , then  $x = \dots\dots\dots$  b  $-|-35| = \dots\dots\dots$
- c A cube of edge length 6 cm, then its lateral area = .....  $\text{cm}^2$
- d The probability of the impossible event = .....

- 3 a** Use the properties of addition operation in  $\mathbb{Z}$  to find the result of:  $(-17) + 19 + 17$   
State the property used in each step.

**b** In the opposite figure:

ABCD is a rectangle its length is 12 cm, its width is 7 cm. Calculate the area of the shaded part where. ( $\pi \approx \frac{22}{7}$ )



- 4** Find the solution set of each of the following equations in  $\mathbb{Z}$ :

- a  $3 - 2x = 9$  b  $3x - 2 = -19$

- 5 a** The sum of edge lengths of a cube is 84 cm.

Find: 1) Its lateral area. 2) Its total area.

- b** The following table shows the percentage of the favourite subjects for the sixth primary in one of the schools through their questionnaire, represent those data by using the circular sectors.

Subject	Arabic	Maths	Science	Social studies
The percentage of the number of the pupils	35%	25%	30%	10%

**6 Additional question:**

**a** Complete:

- (1) The greatest integer numbers which verify the inequality  $x < -3$  are .....
- (2) The image of the point  $(-3, 5)$  by translation  $(x+2, y+3)$  is .....

- b** Find the solution set of the inequality  $8x + 1 \leq 33$  in  $\mathbb{Z}$

**7**

**Dakahlia Educational Zone**

**1 Complete:**

- a The greatest non-positive integer is .....
- b If probability of the success of a pupil in an exam = 0.7 then the probability of his failure = .....
- c If  $|x - 1| = 2$ , then  $x = \dots\dots\dots$  or .....
- d If  $(-2)^x = 16$ , then  $x = \dots\dots\dots$

**2 Choose:**

- a The measure of central angle of circular sector representing 25% of a circle = .....° (45 or 90 or 135 or 270)
- b If  $a + b = 0$ , where  $a \neq b$ , then  $a \times b \dots\dots\dots$  zero. ( $>$  or  $<$  or  $=$  or  $\neq$ )
- c If surface area of two faces of a cube =  $5 \text{ cm}^2$ , then its total surface area = .....  $\text{cm}^2$  (30 or 25 or 15 or 40)
- d The surface area of a circle of diameter length 2 cm = .....  $\text{cm}^2$  ( $2\pi$  or  $4\pi$  or  $\pi$  or  $\pi r$ )

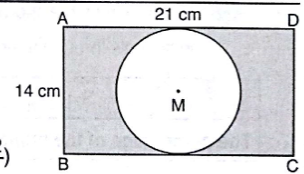
- 3 a** Calculate the value of  $\frac{(-3)^7 \times (-3)^4}{(-3)^9}$

- b** A cuboid with squared base, its height is 10 cm, and its lateral surface area is  $200 \text{ cm}^2$ . Calculate its total surface area.

**4 a** In the opposite figure:

M is a circle inside the rectangle ABCD whose length is 21 cm, and width is 14 cm.

Calculate the surface area of the shaded part. ( $\pi \approx \frac{22}{7}$ )



- b** If  $(x - 2)$  is an additive inverse of 4. Calculate the value of  $3x + 5$ .

**5 a** Find in  $\mathbb{Z}$  the S.S of the equation  $2x + 1 = 7$ .

- b** A regular die is thrown once and the number on its upper face is noticed. Write the sample space. Then find the probability of each of the following events: (Firstly) getting prime number, (Secondly) getting factor of 6.



**6 Additional question:**

- a** If the image of the point  $(a, b)$  by translation  $(-2, 3)$  is the point  $(5, 6)$ , find the coordinates of the point  $(a, b)$ .
- b** The following table shows the favourite sports for the students in a school:

The favourite sport	Basketball	Football	Handball	Volleyball	The sum
The number of the students	25	50	5	.....	100

Complete the data of the table then represent it by circular sectors.

**8**

**Kafr El-Sheikh**

**1 Complete:**

- a** If:  $a \in \{2, 5, -3\} \cap \{-5, -2, -3\}$ , then  $a = \dots\dots\dots$
- b**  $-(5)^2 \times (2)^2 = \dots\dots\dots$
- c** The total area of a cube =  $\dots\dots\dots$
- d** The measure of the angle of the circular sector whose area represents  $\frac{1}{2}$  from the area of the circle =  $\dots\dots\dots$

**2 Choose the correct answer from the given ones:**

- a**  $2^3 + 2^2 = \dots\dots\dots$  (10 or 12 or 32 or 64)
- b** The area of the circle's surface =  $\dots\dots\dots$  ( $\pi r$  or  $2\pi r^2$  or  $\pi r^2$  or  $2\pi r$ )
- c** A fair die is thrown once, then the probability of appearing on the upper face the number 4 =  $\dots\dots\dots$  (0 or  $\frac{1}{6}$  or  $\frac{5}{6}$  or 1)
- d** The sum of the measures of the angles of the sectors about the centre of the circle =  $\dots\dots\dots^\circ$  (90 or 108 or 180 or 360)

**3 a Find the solution set of the equation:  $4x + 3 = 23$ , where  $x \in \mathbb{N}$ .**

**b Find the solution set of the equation:  $3x + 12 = 6$ , where  $x \in \mathbb{Z}$**

**4 a Calculate the lateral area of a cuboid its base is a square of side length 6 cm. and its height is 10 cm.**

**b A circle, its radius length is 21 cm. Calculate its surface area where  $(\pi \approx \frac{22}{7})$**

**5 a Find the result of:  $\frac{(-3)^5 \times (-3)^4}{(-3)^7}$ .**

- b** The following table shows the percentage of the production of one factory for 4 kinds of electric sets:

The kind of the set	TV	Washing machine	Heater	Oven
The percentage of production	35%	25%	15%	25%

Represent these data by using the circular sectors.

**6 Additional question:**

- a Complete :** If  $2x - 3 < 5$ ,  $x \in \mathbb{Z}$  the S.S =  $\dots\dots\dots$
- b Find the image of the square ABCD where A (1,1), B (1,4), C (4, 4) and D (4,1). By translation  $(-1, 2)$ .**

**9**

**Beheira**

**1 Choose the correct answer from those given:**

- a**  $(-1)^3 + (1)^3 = \dots\dots\dots$  (0 or 1 or -1 or 2)
- b** A die is thrown once, then the probability of appearing the number 5 equals  $\dots\dots\dots$  (zero or  $\frac{1}{6}$  or  $\frac{5}{6}$  or 1)
- c**  $\{15\} \dots\dots\dots \mathbb{Z}^-$  ( $\in$  or  $\notin$  or  $\subset$  or  $\supset$ )
- d** A cuboid in which the lateral area is  $120 \text{ cm}^2$ , and the dimensions of its base are 4 cm, and 6 cm, then its height is  $\dots\dots\dots$  cm. (5 or 6 or 12 or 2.5)

**2 Complete the following:**

- a** A cube of edge length 6 cm, then its total area equals  $\dots\dots\dots \text{cm}^2$ .
- b**  $\mathbb{Z} - \mathbb{N} = \dots\dots\dots$
- c** If  $x + 3 = |-7|$ , then  $x = \dots\dots\dots$
- d**  $\dots\dots\dots$  is the set of all possible outcomes for a random experiment.

**3 a Find the result of:  $\frac{7^4 \times 7^5}{7^7}$ .**

**b Find the solution in  $\mathbb{N}$  of the equation:  $2x + 9 = -23$ .**

- 4** a A circle its diameter is 14 cm, calculate its surface area. (consider  $\pi \approx \frac{22}{7}$ )

b Find the solution set in  $\mathbb{Z}$  of the equation:  $6x + 2 = 14$ .

- 5** a A cuboid its length is 6 cm, its width is 4 cm, and its height is 8 cm, find its lateral area and its total area.

b The following table shows the percentage of the production of a factory of house electric sets.

The kind of the set	Washing machine	Heater	Oven	Mixture
The percentage	30%	15%	40%	15%

Represent these data by circular sectors.

- 6** Additional question:

a Choose the correct answer:

If  $3x - 1 > -4$ ,  $x \in \mathbb{Z}$  then, the solution set of the inequality is .....

( $\mathbb{N}$  or  $\emptyset$  or  $\mathbb{Z}^-$  or  $\mathbb{Z}^+$ )

b Find the image of the triangle ABC by translation (2, 0) on the Cartesian system where A (2, 2), B (-4, 0) and C (0, -2).

10

Damietta

- 1** Complete the following:

a The lateral area of the cuboid = perimeter of the base X .....

b  $|-5| + |7| = \dots\dots\dots$

c If  $x - 2 = 1$  then  $x = \dots\dots\dots$

d The measure of the angle of the circular sector which is represented by  $\frac{1}{4}$  surface area of the circle = .....

- 2** Choose the correct answer from those given:

a The identity multiplicative in  $\mathbb{Z}$  is .....

(-1 or 0 or 1 or 2)

b  $(-2)^3 \times (-1)^4 = \dots\dots\dots$

(8 or 2 or -2 or -8)

c If  $\emptyset$  is the empty set then  $P(\emptyset) = \dots\dots\dots$

(zero or 0.5 or 1 or 2)

d The height of cuboid whose lateral rea is  $160 \text{ cm}^2$  and the dimensions of its base are 3 cm and 7 cm equals .....

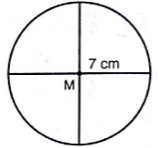
(6 or 8 or 19 or 16)

- 3** a Find the result of:  $\frac{5 \times 5^3}{5^4}$

b Find solution set of the equation  $2x + 1 = -9$  in  $\mathbb{Z}$ .

- 4** a The lateral area of a cube is  $36 \text{ cm}^2$  calculate its total area:

b In the opposite figure, a circle M of radius 7 cm is divided into four equal circular sectors. Calculate the area of each sector.



- 5** First: In an experiment a student is chosen at random from a class of 40 students, 32 students have succeeded in a maths test, 35 students have succeeded in an Arabic test. Find the probability of.

i) the event A, where A is the event that he has succeeded in Arabic.

ii) the event B, where B is the event that he has failed in Maths.

Second: the following table shows the production of chickens on four farms in a month.

Farm	First	Second	Third	Fourth
The Ratio of production	40%	25%	20%	15%

Represent these data by a pie chart.

- 6** Additional question:

a  $\frac{1}{3}, \frac{1}{6}, \frac{1}{12}, \dots\dots\dots$  complete in the same pattern.

b Find the solution set of the inequality  $2x + 7 < 1$  where  $x \in \mathbb{Z}$ , then represent it on the number line.

c Draw  $\triangle ABC$  where A (0, 1), B (2, 3) and C (-1, 4) then find its image by translation  $(x + 2, y + 3)$ .

11

Sharkia

- 1** Choose the correct answer:

a If  $x + 3 = 3$  where  $x \in \mathbb{Z}$  then  $x = \dots\dots\dots$

(zero or 6 or 3 or 9)

b The next integer number to 23 is .....

(25 or 22 or 23 or 24)

c The measure of angle of the sector represented by  $\frac{1}{4}$  of the circle = .....

(54 or 90 or 45 or 180)



- d The surface area of circle with radius length 7 cm is .....  $\text{cm}^2$  ( $\pi \approx \frac{22}{7}$ )  
(49 or 145 or 154 or 44)

**2 Complete:**

- a  $\mathbb{Z} = \mathbb{Z}^+ \cup \mathbb{Z}^- \cup \dots$  b  $\frac{4^3 \times 4^4}{4^7} = \dots$   
c If the volume of a cube is  $1000 \text{ cm}^3$ , then its total area .....  $\text{cm}^2$   
d When throwing a coin once then the possible outcomes = ....., .....

**3 First: Arrange the following numbers ascendingly: 1,9 - 5, -1,3**

Second: Find the solution set of the equation:  $2x + 1 = 13$  where  $x \in \mathbb{Z}$

**4 First: find the area of the circle whose diameter is 28 cm ( $\pi \approx \frac{22}{7}$ )**

Second: find the solution set of the equation:  $4x = 24$  where  $x \in \mathbb{N}$

**5 First: A box in the shape of a cuboid whose base is a square of side length 9 cm and the height of the box is 20 cm, find its lateral area.**

Second: The following table shows the percentage of the production of one factory for 4 kinds of the electric heaters.

The type	First	Second	Third	Fourth
The ratio of production	25%	30%	35%	10%

Represent these data by a pie chart.

**6 Additional question:**

- a Choose the correct answer: If  $3x + 1 < -5$ ,  $x \in \mathbb{N}$   
then the solution set of the inequality = ..... ( $\mathbb{N}$  or  $\mathbb{Z}^+$  or  $\mathbb{Z}$  or  $\emptyset$ )  
b If the image of the point (2,5) is (3, 3) by translation (a, b), then (a, b) = (....., .....

**12 Port Said**

**1 Complete the following:**

- a  $\mathbb{Z}^+ \cap \mathbb{Z}^- = \dots$  b  $6 \times (-2) + (-8) = \dots$   
c Any outcomes you can get inside a random experiment are called .....  
d The edge length of the cube whose total area is  $(600) \text{ cm}^2$  is ..... cm.

**2 Choose the correct answer from the given ones:**

- a  $2^3 \times 2^3 = \dots$  ( $2^6$  or  $4^9$  or  $4^6$  or  $2^9$ )  
b If  $x + 3 = 8$ ,  $x \in \mathbb{Z}^-$  then the solution set is = ..... ( $\{-3\}$  or  $\{5\}$  or  $\{-5\}$  or  $\emptyset$ )  
c The lateral area of the cube = Area of one face  $\times \dots$  (6 or 5 or 4 or 3)  
d A fair die is thrown once, then the probability of appearing the number (4) equals .....  
(zero or  $\frac{1}{6}$  or  $\frac{5}{6}$  or 1)

**3 Find the solution set of each of the following equations in  $\mathbb{Z}$ :**

- 1)  $2x + 1 = 13$  2)  $5x + |-6| = 9$

**4 a Find the result of each of the following:  $(-4)^9 \div (-4)^7$**

- b Calculate the lateral area and the total area of a case in the shape of a cuboid if its base is a square of side length 6 cm, and its height is 10 cm.

**5 a A circle its diameter is (14) cm, calculate its surface area where ( $\pi \approx \frac{22}{7}$ ).**

- b Nahid is a clerk in an institution, she contributes with her husband by her salary as follows: 25% for house rent, 50% for food and expenses and 25% for savings.  
Represent those data by using the circular sectors.

**6 Additional question:**

- a Find the solution set of the inequality  $x \geq 2$  in  $\mathbb{Z}$ , then represent it on the number line.  
b Complete:  
(1) The image of the point  $(-1, 2)$  by translation  $(5, 3)$  ..... is .....  
(2)  $-2, -4, -6, -8, \dots$  ..... in the same pattern.

**13 Suez**

**1 Complete the following:**

- a  $\mathbb{Z}^+ \cup \{0\} = \dots$   
b If  $3x - 3 = 12$  then  $x = \dots$   
c The lateral area of the cuboid = Perimeter of the base  $\times \dots$   
d Any outcomes you can get inside a random experiment are called .....

2 Choose the correct answer:

- a  $|-6| + |-6| = \dots\dots\dots$  (-1 or 1 or -12 or 12)  
 b  $\frac{7^3 \times 7^4}{7^5} = \dots\dots\dots$  (17 or 12 or 49 or 7)  
 c Sample space for tossing a coin once =  $\dots\dots\dots$  {H, H} or {H, T} or {T, T} or {T, H}  
 d The surface area of the circle =  $\dots\dots\dots$  ( $\pi r^2$  or  $2\pi r^2$  or  $\pi r$  or  $2\pi r$ )

3 a Arrange the following numbers descendingly:

-15, -9, 0, 12, 22 and 32

b The following table shows the percentage of the favourite sport for your class students:

The favourite sport	Football	Basketball	Volleyball	Swimming
The percentage	40%	20%	30%	10%

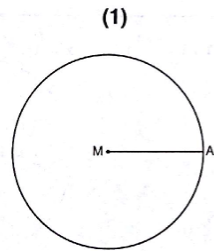
Represent the previous data by using the circular sectors.

4 Solve in  $\mathbb{N}$ :

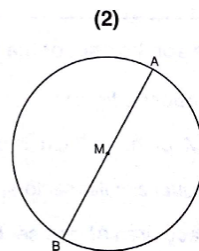
- a  $4x = 24$       b  $x + 17 = 25$

5 a A cube of edge length 9 cm, find is lateral area and its total area.

b In the opposite figures: Calculate the surface area of the circle  $M_1$ ,  $M_2$



AM = 7 cm



AB = 21 cm

6 Additional question:

- a If the image of the point (a, b): by translation  $(-2, 2)$  is  $(-5, 3)$ , find the coordinates of the point (a, b).  
 b Find the solution set of the inequality  $5x + 1 < -4$  in  $\mathbb{N}$ .  
 c If  $x \in \mathbb{Z}$ , find the smallest number from the following:  $x + 5$  or  $5 - x$  or  $\frac{-5}{x}$  or  $5x$

14

North Sinai

1 Choose the correct answer:

- a Zero  $\dots\dots\dots \mathbb{Z}^-$  ( $\in$  or  $\notin$  or  $\subset$  or  $\supset$ )  
 b  $(-32) \div 8 = \dots\dots\dots$  (-4 or 4 or 8 or -8)  
 c The solution of the equation:  $x + 5 = 2$  in  $\mathbb{Z}$  is {  $\dots\dots\dots$  } (7 or -7 or 3 or -3)  
 d A fair die is thrown once, then the probability of appearing the number 5 equals  $\dots\dots\dots$  (zero or  $\frac{1}{6}$  or  $\frac{5}{6}$  or 1)

2 Complete each of the following:

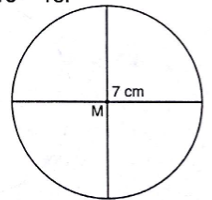
- a  $3^5 - 3^2 = \dots\dots\dots$   
 b A circle its diameter length is 8 cm, then its surface area =  $\dots\dots\dots \pi \text{ cm}^2$ .  
 c The area of one face of a cube is  $9 \text{ cm}^2$ , then its lateral area is  $\dots\dots\dots \text{ cm}^2$ .  
 d The measure of the sector angle of quarter of the circle equals  $\dots\dots\dots$ .

3 a Find the solution set of the following equation in  $\mathbb{Z}$ :  $3x - 15 = 18$ .

b In the opposite figure:

A circle M. of radius 7 cm. is divided into four equal circular sectors, calculate

the surface area of one sector where. ( $\pi \approx \frac{22}{7}$ ).



4 a Find:  $\frac{(-3)^4 \times (-3)^5}{(-3)^7}$



- b** A swimming pool in the form of cuboid base with dimensions 9 m , 7 m and its height equals 10 m. **Calculate**

(1) The lateral area. (2) The total area.

- 5 a** If the sum of the edge lengths of a cube is 108 cm, find:

(1) The lateral area. (2) The total area.

- b** The following table shows the percentage of the production of a factory for electric sets.

Type of the set	Washing machine	Heater	Cooker
Amount of production	30%	40%	30%

Represent these data by the circular sectors.

- 6 Additional question:**

- a** Complete:

(1) The solution set of the inequality  $-2 < x \leq 2$  in  $\mathbb{Z}$  is .....  
 (2) The image of the point  $(-1, 5)$  by the translations  $(x - 3, y + 1)$  is .....

- b** Find the image of the square ABCD by the translation:

$(-2, 2)$  where A  $(0, 0)$ , B  $(0, 2)$ , c  $(2, 2)$  and D  $(2, 0)$  on the drawing.

15

## South Sinai

- 1 Choose the correct answer from those given:**

- a**  $|-5| + |7| = \dots\dots\dots$  (12 or 2 or -2 or -12)  
**b**  $-2x = 16$  then  $x = \dots\dots\dots$  in  $\mathbb{Z}$  (16 or -8 or 8 or -2)  
**c** A die is thrown one time, then the probability of appearing the number 4 equals .....  
 ( $\frac{5}{6}$  or  $\frac{1}{6}$  or zero or 1)  
**d**  $3^2 \times 3 = \dots\dots\dots$  (9 or 3 or 27 or 81)

- 2 Complete the following:**

- a** The lateral area of the cuboid = .....  $\times$  height  
**b**  $\mathbb{Z}^+ \cap \mathbb{Z}^- = \dots\dots\dots$   
**c** The multiplicative identity in  $\mathbb{Z}$  is .....  
**d** The total area of the cube = Area of one face  $\times \dots\dots\dots$

- 3 a** Find the solution set in  $\mathbb{Z}$  of the equation:  $3x + 2 = -19$

- b** Find the result of:  $\frac{6^3 \times 6^5}{6^7 \times 6}$ .

- 4 a** A circle its diameter is 14 cm, calculate its surface area where  $(\pi \simeq \frac{22}{7})$ .

- b** A box contains 8 white balls, 12 red all of them are symmetric, a ball is selected without looking inside the box, find the following probabilities:

(1) The selected ball is white. (2) The selected ball is red.

- 5 a** Calculate the lateral area of a case in the shape of a cuboid if its base is a square of side length 5 cm and its height is 8 cm.

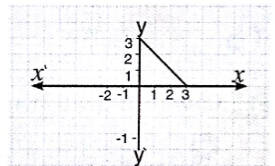
- b** The following table shows the percentage of egg production in three farms, a merchant collected these eggs to distribute it on the grocery stores, represent these data by using the circular sectors.

The farm	First	Second	Third
The percentage of the production	25%	25%	50%

- 6 Additional question:**

- a** Find the solution set of the equation  $3x - 8 < 1$  where  $x \in \mathbb{N}$  then represent it on the number line.

- b** By using the opposite figure find the image of ABC by the translation  $(x + 3, y + 2)$ .



16

## Fayoum

- 1 Choose the correct answer:**

- a**  $4 + |-4| = \dots\dots\dots$  (8 or 0 or -4 or -8)  
**b**  $\mathbb{Z} \cap \mathbb{N} = \dots\dots\dots$  ( $\mathbb{Z}^+$  or  $\mathbb{Z}^-$  or  $\mathbb{Z}$  or  $\mathbb{N}$ )  
**c** If:  $2x - 3 = 9$ , then  $x = \dots\dots\dots$  (-3 or -6 or -9 or 6)  
**d** If a regular coin is tossed once, then the probability that the tail appears is .....  
 (0 or  $\frac{1}{2}$  or 1 or 2)

2 Complete the following:

- a  $(-19)^0 + (19)^0 = \dots\dots\dots$   
 b The total area of the cube =  $\dots\dots\dots$   
 c The surface area of the circle =  $\dots\dots\dots$   
 d A fair die is thrown once, then the probability of appearing an even number =  $\dots\dots\dots$

3 a Find the solution set of the equation:  $x - 12 = 4$  in  $\mathbb{N}$ .

b Find the solution set of the equation:  $3x - 2 = -17$  in  $\mathbb{Z}$ .

4 a Find the result of:  $\frac{4^3 \times (-4)^5}{(4)^7}$

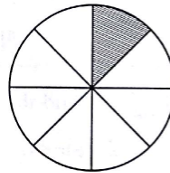
- b A cuboid with a square base of side length 8 cm and its height is 10 cm.

Calculate the lateral area and the total area of the cuboid.

5 a In the opposite figure:

Circle M of a radius 7 cm,  
is divided into 8 equal circular sectors.

Calculate the area of one sector. ( $\pi \approx \frac{22}{7}$ )



- b The following table shows the percentage of the production of chickens in 4 farms monthly.

Farms	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
The percentage	10%	40%	30%	20%

Represent these data by circular sectors.

6 Additional question:

a Complete:

- (1) 7, 10, 13, 16, 19,  $\dots\dots\dots$ . Complete in the same pattern.  
 (2) The image of the point A (2, -1) by translation on  $(x - 1, y + 3)$  is  $\dots\dots\dots$ .

b Find the solution set of the inequality  $4x + 1 < 13$  where  $x \in \mathbb{N}$ .

c Draw  $\overline{AB}$  where A (1, 1), B (-3, -1) then find its image  $\overline{A'B'}$  by the translation (1, 2).

17

Beni Suef

1 Choose the correct answer from those given:

- a  $|-5| + |7| = \dots\dots\dots$  (2 or -2 or 12 or -12)  
 b The area of a circle's surface =  $\dots\dots\dots$  ( $\pi r^2$  or  $2\pi r^2$  or  $\pi r$  or  $2\pi r$ )  
 c The measure of the angle of the sector which represents  $\frac{1}{4}$  the circle =  $\dots\dots\dots$  ( $30^\circ$  or  $45^\circ$  or  $60^\circ$  or  $90^\circ$ )  
 d At throwing a fair die and observing the upper face, then the probability of getting a number greater than 6 =  $\dots\dots\dots$  ( $\emptyset$  or zero or  $\frac{1}{6}$  or  $\frac{1}{3}$ )

2 Complete the following:

- a The smallest positive integer number is =  $\dots\dots\dots$   
 b  $(4)^{\text{zero}} = \dots\dots\dots$   
 c If:  $x + 2 = 3$  and  $x \in \mathbb{N}$ , then  $x = \dots\dots\dots$   
 d A cube in which the area of one face is  $9 \text{ cm}^2$ , then its lateral area =  $\dots\dots\dots \text{ cm}^2$

3 a Find the result of:  $\frac{(3)^3 \times (3)^4}{(3)^5}$

- b Find the solution set of the equation  $2x + 1 = 13$  in  $\mathbb{N}$ .

4 a Find the solution set of equation in  $2x = 16$   $\mathbb{N}$ .

- b Find the area of a circle whose radius is 14 cm. (Where  $\pi \approx \frac{22}{7}$ ).

5 a A cuboid of length 6 cm, width 4 cm and height 8 cm. Find its lateral area.

- b The following table shows the percentage of the production of a factory for three kinds of electric water heaters:

The kind	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>
The percentage	15%	30%	55%

Represent these data by a pie chart.

6 Additional question:

- a Complete: The image of the point (3, -2) by translation (2, 3) is  $\dots\dots\dots$ .  
 b Solve the inequality  $x + 5 < 7$  where  $x \in \mathbb{Z}$



18

### Minia

1 Choose the correct answer from those given:

- a The sure event probability = ..... (1 or zero or -1 or 2)  
 b  $|-3| + |3| = \dots\dots\dots$  (zero or 6 or -6 or -9)  
 c  $\mathbb{Z}^+ \cup \{0\} = \dots\dots\dots$  ( $\mathbb{Z}^+$  or  $\mathbb{Z}$  or  $\mathbb{Z}^-$  or  $\mathbb{N}$ )  
 d The total area of a cube = The area of one face  $x$  ..... (3 or 5 or 6 or 4)

2 Complete the following:

- a For any two integers (a) and (b), then  $a \times b = \dots\dots\dots x a$ .  
 b The area of the circle =  $\pi \dots\dots\dots$   
 c Sample space is the set of all ..... for a random experiment.  
 d If:  $x - 2 = 5$ , then  $x = \dots\dots\dots$

3 a Find the result of:  $\frac{5^3 \times 5^4}{5^7}$  in the simplest form.

b Find the solution set of the following equation  $3x + 7 = -14$  in  $\mathbb{Z}$ .

4 a The sum of the edge lengths of a cube is 60 cm. Find its total area.

b If:  $a = 3^2$  and  $b = 2^3$ , find the value of  $(a - b)^{15}$ .

5 a A cuboid of length 6 cm, width 4 cm and height 8 cm. Find its lateral area.

b The following table shows the percentage of the production of a factory for 4 kinds of the electric sets.

Type of the set	TV	Washing machine	Refrigerator	Cooker
The percentage of production	25%	15%	25%	35%

Represent these data by circular sectors.

19

### Assiut

1 Choose the correct answer from those given:

- a At throwing a fair die and observing the upper face, then the probability of getting a number greater than 6 = ..... ( $\emptyset$  or zero or  $\frac{1}{6}$  or  $\frac{1}{3}$ )  
 b  $(-9)^0 + (9)^0 = \dots\dots\dots$  (-1 or zero or 2 or 1)  
 c The area of the base of a cube =  $9 \text{ cm}^2$ , then the lateral area of the cube = .....  $\text{cm}^2$ . (36 or 81 or 27 or 18)  
 d If:  $x + 3 = 8$ ,  $x \in \mathbb{Z}$ , then the solution set is ..... ( $\{-3\}$  or  $\{5\}$  or  $\{-5\}$  or  $\emptyset$ )

2 Complete the following:

- a  $\mathbb{Z}_+ \cap \mathbb{Z}_- = \dots\dots\dots$   
 b  $|-3| + |5| = \dots\dots\dots$   
 c The total area of the cube = the area of one face  $x$  .....  
 d The measure of the angle of the sector which represents  $\frac{1}{2}$  of the circle equals .....

3 a Find the value of:  $\frac{2^6 \times 2^5}{2^3 \times 2^4}$ .

b Solve the equation:  $4x + 1 = 17$  in  $\mathbb{N}$ .

4 a A box contains 8 white balls, 12 red. All of them are symmetric, a ball is selected without looking inside the box, find the following probabilities:

(1) The selected ball is white. (2) The selected ball is blue.

b A circle its diameter is 14 cm, calculate its surface area. (where  $\pi \approx \frac{22}{7}$ )

5 a A cube of edge length 10 cm and a cuboid its length is 8 cm, its width is 5 cm, its height is 17 cm. Calculate the difference between their lateral areas.

b The following table shows the percentage of egg production in three farms within one month.

The farm	First	Second	Third
The percentage of the production	25%	35%	40%

Represent these data by circular sectors.

20

Qena

1 Choose the correct answer:

- a  $(-1)^{104} + (-1)^{103} = \dots\dots\dots$  (zero or -1 or 1 or 2)  
 b A circle, its diameter length is 8 cm, its area =  $\dots\dots\dots \pi \text{ cm}^2$  (4 or 8 or 16 or 64)  
 c If:  $x + 3 = 8, x \in \mathbb{Z}$ , then the solution set  $\dots\dots\dots$  ( $\{-3\}$  or  $\{5\}$  or  $\{-5\}$  or  $\emptyset$ )  
 d The sum of measures of accumulative angles about the center of a circle is  $\dots\dots\dots$  (90° or 108° or 180° or 360°)

2 Complete the following:

- a  $\mathbb{Z}^+ \cap \mathbb{Z}^- = \dots\dots\dots$   
 b The length of the cube edge whose total area is  $150 \text{ cm}^2 = \dots\dots\dots \text{ cm}$ .  
 c If a die is rolled once, then the probability of getting the number 5 equals  $\dots\dots\dots$   
 d  $2 - (-3) = \dots\dots\dots$

3 a Find the result of:  $\frac{6^4 \times 6^5}{6^7}$

- b A circle, its diameter length is 14 cm. Calculate its surface area and circumference. ( $\pi \approx \frac{22}{7}$ )

4 a Find the solution set of the equation:  $4x + 1 = 17$  where  $x \in \mathbb{N}$

- b A box contains 8 white balls, 12 red balls, all balls are identical. If a ball is chosen randomly, find the probability of the following:  
 (1) The chosen ball is white. (1) The chosen ball is red.

5 a A cuboid its length is 6 cm, its width is 4 cm, and its height is 8 cm, Find:

- (1) Its lateral area. (2) Its total area.  
 b The following table shows the percentage of the production of a factory of house electric sets:

The kind of set	Washing machine	Heater	Oven	Mixture
The percentage	30%	15%	40%	15%

Represent these data by circular sectors.

6 Additional question:

- a Complete in the same pattern:  $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16}, \dots\dots\dots$   
 b Draw  $\triangle ABC$  where A (0,4), B (2,1) and C (-2,1). Find the length of BC, then find the image of  $\triangle ABC$  by translation (0, 2).

21

Sohag

1 Complete the following:

- a The absolute value of the integer (-9) is  $\dots\dots\dots$ .  
 b The probability of impossible event =  $\dots\dots\dots$ .  
 c If  $7x = (-42)$ , then  $x = \dots\dots\dots$  where  $x \in \mathbb{Z}$   
 d The set of all possible outcomes for a random experiment is called  $\dots\dots\dots$ .

2 Choose the correct answer:

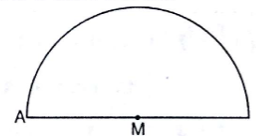
- a  $-|-4| = \dots\dots\dots 2$  ( $>$  or  $<$  or  $=$  or  $\geq$ )  
 b  $2^3 \times 2^5 = \dots\dots\dots$  ( $2^8$  or  $2^{15}$  or  $4^8$  or  $4^{15}$ )  
 c The measure of a circular sector whose area represents  $\frac{1}{8}$  from the area of the circle  $\dots\dots\dots$  marks. (90 or 180 or 360 or 45)  
 d The area of a circle is  $\dots\dots\dots$  ( $\pi r$  or  $2\pi r$  or  $\pi r^2$  or  $3r$ )

3 a Find the result of the following:  $\frac{(2)^7 \times (2)^2}{(2)^5}$

- b Solve the equation:  $3x + 1 = 13$  where  $x \in \mathbb{N}$ .

4 a A cuboid its length is 6 cm, its width is 4 cm, and its height is 5 cm. Find its:

- (1) Lateral area. (2) Total area.  
 b Find the area of the opposite figure:  
 (where  $\pi \approx \frac{22}{7}$ , AM = 3.5 cm)



5 a Find the solution set of the equation:  $4 - 2x = 24$  where  $x \in \mathbb{Z}$

- b The following table shows the ratio for producing chickens in four farms in a month:

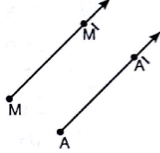
Farm	First	Second	Third	Fourth
Ratio of the production	30%	25%	25%	20%

Represent these data by a pie chart.



**6** Complete using the opposite figure:

- a A is the image of A by the translation of value ..... and direction .....  
 b The solution set of  $2x + 9 < 1$  where  $x \in \mathbb{Z}$ , then represent the solution set on the number line.



**22** Aswan

**1** Choose the correct answer from the given ones:

- a  $2^3 \times 2^5 = \dots\dots\dots$  ( $4^3$  or  $2^{15}$  or  $2^8$  or  $4^{15}$ )  
 b The measure of the angle of the circular sector whose area represents  $\frac{1}{8}$  from the area of the circle = ..... ( $30^\circ$  or  $45^\circ$  or  $60^\circ$  or  $90^\circ$ )  
 c  $3 + |-3| = \dots\dots\dots$  (zero or 3 or -6 or 6)  
 d In the experiment of tossing a die once, the probability of getting an even number = ..... (zero or 0.5 or 1 or 2)

**2** Complete the following:

- a  $(-36) \div (-4) = \dots\dots\dots$   
 b A cube, its edge length is 4 cm, then its total area = .....  $\text{cm}^2$   
 c If:  $7x = -42$ , then  $x = \dots\dots\dots$   
 d The area of the circle surface = .....

**3** a Find the solution set of the equation:  $2x + 9 = 3$  in  $\mathbb{Z}$

- b Find the result of:  $\frac{(-2)^3 \times (-2)^4}{(-2)^5}$ .

**4** a A circle its diameter length is 14 cm. Calculate its surface area and its perimeter.

- b Find the solution set of the equation:  $3x + 7 = 19$  in  $\mathbb{Z}$

**5** a A cuboid of length 6 cm, width 4 cm, and height 8 cm. Calculate its lateral area and its total area.

- b The following table shows the percentage of the production of a factory for three kinds of electric water heaters:

The kind	First	Second	Third
The percentage of the production	15%	30%	55%

Represent these data by a pie chart.

**6** a Complete:

- (1) 1, 1, 2, 3, 5, 8 ..... complete in the same pattern.  
 (2) The image of (4, 5) by the translation  $(-2, 1)$  is .....

- b Find the solution set of the inequality:  $3x - 2 < 7$  where  $x \in \mathbb{N}$

**23** The Red Sea

**1** Choose the correct answer from the given ones:

- a  $\frac{13}{5} = \dots\dots\dots \mathbb{Z}$  ( $\in$  or  $\notin$  or  $\subset$  or  $\supset$ )  
 b  $\mathbb{Z} - \mathbb{N} = \dots\dots\dots$  ( $\mathbb{Z}^-$  or  $\mathbb{Z}^+$  or  $\mathbb{N}$  or  $\mathbb{Z}$ )  
 c A regular coin is tossed once, then the probability of getting a head is = ..... (zero or 2 or  $\frac{1}{2}$  or 0.25)  
 d The area of the circle surface equals ..... ( $\pi r$  or  $2\pi r$  or  $\pi r^2$  or  $2\pi r^2$ )

**2** Complete the following:

- a  $(-2) + 8 = \dots\dots\dots$  b If:  $x + 2 = 10$ ,  $x \in \mathbb{Z}$ , then  $x = \dots\dots\dots$   
 c If the volume of cube is  $1000 \text{ cm}^3$ , then its total area = .....  $\text{cm}^2$ .  
 d At throwing a fair die and observing the upper face, then the probability of getting a number greater than 6 = .....

**3** a Find the result of:  $\frac{(-3)^2 \times (-3)^4}{(-3)^5}$ .

- b Find the solution set in  $\mathbb{Z}$  of the equation:  $2x + 9 = 3$ .

**4** a Calculate the lateral area of a case in the shape of a cuboid if its base is a square of side length 6 cm and its height is 10 cm.

- b Find the solution set in  $\mathbb{N}$  of the equation:  $4x = |-8|$ .

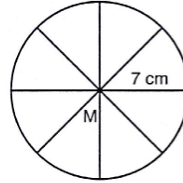
**5 a** In the opposite figure:

A circle of radius length 7 cm is divided

into 8 equal circular sectors. **Find:**

**First:** The area of one circular sector. ( consider  $\pi \simeq \frac{22}{7}$  )

**Second:** The measure of the central angle of sector.



- b** The following table shows the percentage of the number of students who participate in the school activities:

The activity	Culture	Sport	Social	Art
The percentage	5%	45%	15%	35%

Represent these data by a pie chart.

**6 a** Complete the following:

(1) The image of the point (4, 5) by the translation  $(-2, 1)$  is .....

(2) The solution set of the inequality  $-2 < x \leq 0$  in  $\mathbb{Z}$  is .....

(2) 1, 1, 2, 3, 5, 8 ..... in the same pattern

- b** Find the solution set of the inequality:  $x - 3 < 1$  where  $x \in \mathbb{N}$